

CLAIMS:

1. A UV radiation curable primer coating composition comprising
 - a. 5 to 50 % by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule
 - b. 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule
 - c. 1.0 to 60% by weight of one or more pigments, fillers and or dyes
 - d. 0.1 to 0.95 % photoinitiators
 - e. 0 to 20% by weight of volatile organic solvent and
 - f. 0.1 to 10% by weight of additives,
 wherein said coating is curable to a non-tacky surface under a UVA radiation emitting lamp within 2 minutes and in sunlight within 5 minutes.
2. A primer coating composition according to claim 1 wherein the compound A is selected from the group consisting of 1-octene, 1-hexene, 1-decene, vinyl acetate, styrene, alpha-methylstyrene, p-methylstyrene, esters of methacrylic acid and esters of acrylic acid.
3. A primer coating according to claim 1 wherein compound A is selected from butyl acrylate, t-butyl acrylate, isobornyl acrylate, isodecyl acrylate, 2-ethylhexyl acrylate, lauryl acrylate, cyclohexyl acrylate and octyl acrylate.
4. A primer coating composition according to claim 1 wherein compound B is selected from the group consisting of urethane acrylates, diacrylates, triacrylates, polyfunctional acrylates and mixtures thereof.
5. A primer coating according to claim 1 wherein compound B is selected from the group consisting of hexanediol diacrylate, tripropyleneglycol diacrylate, trimethylolpropane triacrylate, alkoxylated

trimethylolpropane triacrylate, pentaerythritol triacrylate, pentaerythritol tetraacrylate, dipentaerythritol hexaacrylate, urethane acrylates and unsaturated polyesters, and mixtures thereof.

- 5 6. A primer coating according to claim 1 wherein compound B is selected from the group consisting of di- and poly-functional urethane acrylates.
7. A primer coating composition according to claim 1 wherein the pigment to binder ratio is between 0.8 and 2.0.
- 10 8. A primer coating composition according to claim 1 wherein the pigment to binder ratio is between 1.2 and 1.8.
- 15 9. A primer coating composition according to claim 1 wherein the photoinitiator comprises a compound selected from the group consisting of acyl phosphine oxides and benziketals.
- 20 10. A primer coating composition according to claim 1 wherein said coating is cured by 5 minute exposure to outdoor light having an intensity of 45-65 mJoules/cm² and demonstrates 95% post humidity test adhesion.
- 25 11. A process for applying a primer coating composition to a substrate comprising
A. applying a UV radiation curable primer to a substrate;
B. curing the primer with a source selected from the group consisting of one or more UV lamps having a UV-B:UV-A ratio of 1:1 or less, and natural outdoor light having a wavelength between 320 and 430 nm, and mixtures thereof ,
wherein the UV radiation curable primer comprises
30 a. 5 to 50 % by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule,

- b. 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule,
- c. 1.0 to 60% by weight of one or more pigments, fillers and or dyes,
- 5 d. 0.1 to 0.95 % photoinitiators,
- e. 0 to 20% by weight of volatile organic solvent and
- f. 0.1 to 10% by weight of additives.
12. A process according to claim 11 wherein the coating applied comprises compound A is selected from the group consisting of 1-octene, 1-hexene, 1-decene, vinyl acetate, styrene, alpha-methylstyrene, p-methylstyrene, esters of methacrylic acid and esters of acrylic acid and mixtures thereof.
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13. A process according to claim 11 wherein the coating applied comprises compound A selected from butyl acrylate, t-butyl acrylate, isobornyl acrylate, isodecyl acrylate, 2-ethylhexyl acrylate, lauryl acrylate, cyclohexyl acrylate and octyl acrylate and mixtures thereof.
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14. A process according to claim 11 wherein the coating applied comprises compound B selected from the group consisting of urethane acrylates, urethane diacrylates, tri- and polyfunctional urethane acrylates and mixtures thereof.
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15. A process according to claim 11 wherein the coating applied comprises a pigment to binder ratio between 0.8 and 2.0.
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16. A process according to claim 11 wherein the coating applied comprises a pigment to binder ratio between 1.2 and 1.8.
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17. A process according to claim 11 wherein a UV light source is applied wherein the UVA intensity is from 0.8 to 1.6 Joules/cm², the UVB

intensity is from .001 to 0.5 Joules/cm² and the UVC intensity is from .001 to 0.3 Joules/cm².

5 18. A process according to claim 11 wherein the coating is cured under natural light conditions, said light providing an intensity of 5-100 mJoules/ cm².

 19. A process according to claim 11 wherein the substrate to which the coating is applied to a substrate comprising an automotive vehicle.

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 20. A process according to claim 11 wherein the coating process comprises application of the primer coating in the repair of an automotive vehicle.